

MIM/TDR Anti-Malaria Drug Resistance Network

Workshop on the Standardization of Molecular Markers of Anti-malaria Drug Resistance

January 23, 2002, Kampala UGANDA

Objectives

As one of a series of workshops to standardize protocols for the different parameters of the Anti-Malaria Drug Resistance Network (ADRN), to be used by the different sites for collection of data and its subsequent comparison, the workshop held in Kampala from January 10-22, 2002, had as objectives, to:

- establish common protocols for the investigation of mutations on gene involved in the transport or metabolism of anti-malarial drugs namely *Pfcr*, *Pfmdr1*, *dhps*, *dhfr* and those of *Plasmodium falciparum* population structure – *msp1*, *msp2* and *glurp*
- interpret and discuss challenges and variations to the interpretation of research findings so obtained
- establish collaboration between researchers of institutions of the network
- understand procedures for quality control and assurance

Two candidates were selected from each site the least of the candidates had a Masters degree.

Preparation and Execution

Organizational arrangements began during a site visit and planning of room space and communication. Provision was therefore made for preparations of reagents, lectures and set up of experiments, gel electrophoresis and the darkroom. There was also easy internet connectivity through a computer placed at the disposal of the participants and office space was provided for the Network Manager.

Reagents were ordered at short notice from MR4 and included DNA samples and primers to the different mutations and target sequences. Enzymes were bought from New England Biolabs, USA and all other chemicals were purchased from SIGMA chemical company, USA. For reagents that did not reach on time backup reagents were graciously provided by Dr Egwang..

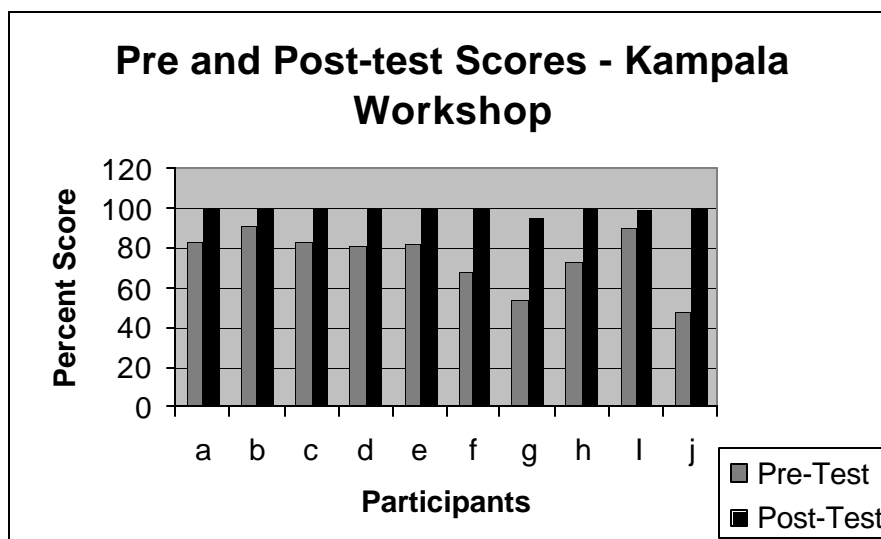
The facilitators came a few (4-6) days earlier to do trial experiments before the arrival of the participants. The workshop was opened by Professor Oladepo Walker, WHO Representative for Uganda in the presence of the National Malaria Control Program Manager, Dr. Peter Langi, who all lauded the efforts of the WHO to move the debate further in addressing the issues of drug resistance.

Each participant, brought along samples with which they performed the necessary experiments. Results were interpreted for each site and the variations in positive results and band intensities were interpreted. Troubleshooting was performed for each site's data. These results were first orally presented and then written up into reports in groups of three. The hallmark of the workshop was the hands-on experience, facilitated by the small size of the class, and the availability of reagents. In addition, the real-time nature of experiments gave the participants the intensity and focus needed to set the tone of their commitment..

Extra lectures were suggested and organized on Grant Writing, Good Laboratory practice and Primer Design. Post-lecture discussions/Journal clubs were held in the hotels and chaired by the participants on topics which included – 1).The Life Cycle: development, diagnosis and therapeutic targets, 2). Should parasitemic asymptomatic individuals be treated for malaria, 3). Changing policy: are molecular markers of drug resistance necessary and sufficient.

Pre- and Post-test

A pre-test and post test administered to find out on the level of knowledge of the students demonstrated considerable improvement in knowledge at the end of the workshop.



Participants rated the course very highly and particularly noted the fact that;

- The lecturers came earlier to do trial runs of experiments before the participants arrived
- The group discussions/Journal clubs at the hotel on various topics
- The interpretation of each gel photograph to point out the challenges and analysis and the variations that may be encountered
- The ready availability of equipment and reagents
- The practical exposure which was well covered and this was particularly so because the class size was small enough for individual hands-on-experience and attention to students with particular needs and questions.

All participants planned to use the techniques, once they return, to have a better understanding of the relationship between molecular markers and drug resistance in malaria. Some plan to use it in addition, to understand parasite biology and to identify new lead molecules as targets for drugs.

We acknowledge the Secretary and Staff of MBL, Uganda and Ms. Kerry White of TDR/RCS for the handling of logistic details. Our most gratitude also go to Dr Shiguang of MR4 for the timely preparation of the reagents despite the short notice.

Wilfred Mbacham, Manager